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10/574,142	03/29/2006	Gerardus P. Karman	GB030175	8679
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SPAR, ILANA L				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/574,142

Applicant(s)

KARMAN ET AL.

Examiner

ILANA SPAR

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-28 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 29 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 7/24/2007
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-28 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-36 of copending Application No. 10/574,141. Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions are directed to modification of an optical characteristic by controlling the intensity/grey scale level of the data. Claim 1 of the current invention teaches a display panel and driver of a three dimensional image display device, and a grey scale compensation device that compensates for the viewing angle. Claim 1 of the copending application teaches the same display panel and driver of a three dimensional image display device, and an

intensity compensation device that compensates for the viewing angle. The grey scale and intensity of the data are equivalent concepts, such that the current and copending applications are not patentably distinct.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. Claims 1-28 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-29 of copending Application No. 10/574,141. Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions are directed to modification of an optical characteristic by controlling the grey scale/color level of the data. Claim 1 of the current invention teaches a display panel and driver of a three dimensional image display device, and a grey scale compensation device that compensates for the viewing angle. Claim 1 of the copending application teaches the same display panel and driver of a three dimensional image display device, and a color compensation device that compensates for the viewing angle. The grey scale and color level are equivalent concepts, such that the current and copending applications are not patentably distinct.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 27 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not discuss a computer program product or computer readable medium, nor does it mention an electronic data transmission, and should be amended to do so. Additionally, any amendments to the specification should explicitly define a computer readable medium and electronic data transmission to include only statutory classes to avoid a rejection under 35 USC § 101.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 27 and 28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In claim 27, 'a computer readable medium' is not defined in the specification to include only statutory subject matter, and therefore is interpreted to include such non-statutory classes as carrier signals and waves. In claim 28, 'electronic data transmission' is interpreted to include such non-statutory classes as carrier signals and waves. The specification should be amended to provide a

description of a computer readable medium and electronic data transmission which includes only statutory classes.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-8, 13, 18, 19, 23, 27, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Balogh (US Published Patent Application 2001/0028356).

With reference to claim 1, Balogh teaches a display device for displaying a three dimensional image such that different views are displayed according to the viewing angle, the display device including:

a display panel having a plurality of separately addressable pixels for displaying said image, the pixels being grouped such that different pixels in a group correspond to different views of the image (see paragraph 32, lines 3-4 and paragraph 39, lines 1-7);

a display driver for controlling an optical characteristic of each pixel to generate a grey scale image according to received image data (see paragraph 47); and

a grey scale compensation device for further controlling said optical characteristic of at least some pixels within a group to compensate for a predetermined viewing angle dependency of said optical characteristic (see paragraphs 6-7 and paragraph 49, lines 2-9).

With reference to claim 2, Balogh teaches all that is required with reference to claim 1, and further teaches including a back panel for providing a plurality of discrete sources of illumination, each group of pixels in the display panel being positioned to receive light from a respective one of the discrete sources of illumination (see paragraph 34, lines 1-3).

With reference to claim 3, Balogh teaches all that is required with reference to claim 2, and further teaches that the back panel provides a plurality of line sources of illumination (see paragraph 34, lines 1-3).

With reference to claim 4, Balogh teaches all that is required with reference to claim 2, and further teaches that the back panel provides a plurality of point sources of illumination (see paragraph 34, lines 6-7).

With reference to claim 5, Balogh teaches all that is required with reference to claim 2, and further teaches that the display panel is a light-transmissive display panel adapted for viewing from a side opposite to the side on which the back panel is located (see paragraph 7, lines 1-5).

With reference to claim 6, Balogh teaches all that is required with reference to claim 1, and further teaches including a lenticular array positioned adjacent to the display panel, each lenticle within the array focusing light from selected pixels in the display panel (see paragraph 36, lines 1-5).

With reference to claim 7, Balogh teaches all that is required with reference to claim 6, and further teaches that each lenticle within the array is associated with a said group of pixels (see paragraph 37).

With reference to claim 8, Balogh teaches all that is required with reference to claim 1, and further teaches that the optical characteristic is a light transmission characteristic and the display driver and grey scale compensation device are adapted to control the amount of light passing through each pixel according to a grey scale image to be displayed (see paragraph 7).

With reference to claim 13, Balogh teaches all that is required with reference to claim 8, and further teaches that the grey scale compensation device comprises a transmission versus voltage characteristic, the grey scale compensation device adapted to adjust a pixel drive voltage and/or current received from the display driver (see paragraph 7).

With reference to claim 18, Balogh teaches a method for displaying a three dimensional image on a display device such that different views of the image are displayed according to the viewing angle, the method comprising the steps of:

processing image data to form grey scale pixel data values for each one of a plurality of separately addressable pixels in display panel, the pixels being grouped such that different pixels in a group correspond to different views of the image, the pixel data values each for controlling an optical characteristic of a respective pixel to generate a grey scale image (see paragraph 39, lines 1-7 and paragraph 47);

applying grey scale correction values to at least some pixel data values within each group to compensate for a predetermined viewing angle dependency of the optical characteristic (see paragraphs 6-7 and paragraph 49, lines 2-9); and

using the corrected pixel data values to drive pixels of a display panel to generate said image (see paragraph 7 and paragraph 49).

With reference to claim 19, Balogh teaches all that is required with reference to claim 18, and further teaches that the optical characteristic is a light transmission characteristic and the grey scale correction values applied are adapted to control the amount of light passing through each pixel according to a three dimensional grey scale image to be displayed (see paragraph 7, lines 1-5).

With reference to claim 23, Balogh teaches all that is required with reference to claim 19, and further teaches that the grey scale correction values are derived from a transmission versus voltage characteristic of the display panel, the corrected pixel data values being used to adjust a pixel drive voltage and/or current applied to the display panel (see paragraph 7).

With reference to claim 27, Balogh teaches all that is required with reference to claim 19, and it is further inherent that a display as taught by Balogh (see claim 1) would be controlled by a computer, such that the method of claim 18 would be carried out according to instructions provided from a computer program stored in the computer.

With reference to claim 28, Balogh teaches all that is required with reference to claim 18, and it is further inherent that a display as taught by Balogh (see claim 1) would be controlled by a computer, such that the method of claim 18 would be carried out according to instructions provided from a computer program stored in the computer.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 9-12, 14, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balogh in view of Andrade et al. (US Patent No. 6,954,193).

With reference to claim 9, Balogh teaches all that is required with reference to claim 1, but fails to teach a look-up table.

Andrade et al. teaches that the grey scale compensation device comprises a look-up table containing correction values to be applied in respect of each pixel within a group (see column 7, lines 29-41).

It would have been obvious to one of ordinary skill in the art at the time of invention to use a look-up table to modify the data applied to each pixel because the correction values for each viewing angle are fixed for each pixel position, such that the

use of a look-up table can save calculation time as correction values are applied to the pixel data.

With reference to claim 10, Balogh teaches all that is required with reference to claim 8, but fails to teach that the correction values are selected according to the viewing angle of a respective pixel within the group.

Andrade et al. teaches that the correction values are selected according to the viewing angle of a respective pixel within the group (see column 8, lines 63-66).

It would have been obvious to one of ordinary skill in the art at the time of invention to correct the grey scale of each pixel based on the viewing angle such that the grey scale of each pixel can remain constant at each viewing angle.

With reference to claim 11, Balogh and Andrade et al. teach all that is required with reference to claim 10, and Balogh further teaches that the correction values are selected so as to substantially normalise a grey scale intensity displayed by a group of pixels to be independent of the viewing angle (see paragraph 7).

With reference to claim 12, Balogh and Andrade et al. teach all that is required with reference to claim 9, and Andrade et al. further teaches that the look-up table includes substitution values or offset values as a function of viewing angle to be applied to a frame store (see column 7, lines 29-41).

With reference to claim 14, Balogh teaches all that is required with reference to claim 13, but fails to teach a voltage or current offset applied to the driving voltage or current.

Andrade et al. teaches that the grey scale compensation device provides a voltage and/or current offset to the pixel drive voltage and/or current received from the display driver (see column 7, lines 29-41).

It would have been obvious to one of ordinary skill in the art at the time of invention that in order to adjust the color level of the pixels, the drive voltage applied to the pixels must be adjusted.

With reference to claim 20, Balogh teaches all that is required with reference to claim 18, but fails to teach a look-up table.

Andrade et al. teaches that the grey scale correction values are obtained from a look-up table containing correction values to be applied in respect of each pixel within a group (see column 7, lines 29-41).

It would have been obvious to one of ordinary skill in the art at the time of invention to use a look-up table to modify the data applied to each pixel because the correction values for each viewing angle are fixed for each pixel position, such that the use of a look-up table can save calculation time as correction values are applied to the pixel data.

With reference to claim 21, Balogh teaches all that is required with reference to claim 19, but fails to teach that the correction values are selected according to the viewing angle of a respective pixel within the group.

Andrade et al. teaches that the correction values are selected according to the viewing angle of a respective pixel within the group (see column 8, lines 63-66).

It would have been obvious to one of ordinary skill in the art at the time of invention to correct the color of each pixel based on the viewing angle such that the color of each pixel can remain constant at each viewing angle.

With reference to claim 22, Balogh and Andrade et al. teach all that is required with reference to claim 21, and Balogh further teaches that the correction values are selected so as to substantially normalise a grey scale displayed by a group of pixels to be independent of the viewing angle (see paragraph 2, lines 13-19 and paragraph 7).

12. Claims 15-17 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balogh in view of Mochizuki (US Patent No. 6,386,720).

With reference to claim 15, Balogh teaches all that is required with reference to claim 1, but fails to teach that the viewing angle dependence is reduced relative to the y-axis and an axis that is transverse to the y-axis.

Mochizuki teaches that the inherent optical characteristics of the display panel are configured such that viewing angle dependence is reduced or substantially minimised relative to the y-axis and the grey scale compensation device serves to reduce or substantially minimise viewing angle dependence relative to an axis that is transverse to the y-axis (see column 5, line 66 to column 6, line 11).

It would have been obvious to one of ordinary skill in the art at the time of invention that pixels located directly above a light source would not be affected by viewing angle dependence, but that pixels on either side of the x- or y-axes would be, and that any pixel can be compensated for using the above process as necessary to reduce intensity discrepancies.

With reference to claim 16, Balogh and Mochizuki teach all that is required with reference to claim 15, and Mochizuki further teaches that the grey scale compensation device serves to reduce or substantially minimise viewing angle dependence relative to an axis that is orthogonal to the y-axis (i.e. the x-axis) (see column 5, line 66 to column 6, line 11).

With reference to claim 17, Balogh and Mochizuki teach all that is required with reference to claim 16, and Mochizuki further teaches that the x-axis is defined as the horizontal axis when the object is in normal use, and the y-axis is defined as the vertical axis when the object is in normal use (see column 5, line 66 to column 6, line 11).

With reference to claim 24, Balogh teaches all that is required with reference to claim 18, but fails to teach that the viewing angle dependence is reduced relative to the y-axis and an axis that is transverse to the y-axis.

Mochizuki teaches that viewing angle dependence is reduced or substantially minimised relative to the y-axis and applying said grey scale correction values so as to reduce or substantially minimise viewing angle dependence relative to an axis that is transverse to the y-axis (see column 5, line 66 to column 6, line 11).

It would have been obvious to one of ordinary skill in the art at the time of invention that pixels located directly above a light source would not be affected by viewing angle dependence, but that pixels on either side of the x- or y-axes would be, and that any pixel can be compensated for using the above process as necessary to reduce intensity discrepancies.

With reference to claim 25, Balogh and Mochizuki teach all that is required with reference to claim 24, and Mochizuki further teaches that the grey scale correction values are applied to reduce or substantially minimise viewing angle dependence relative to an axis that is orthogonal to the y-axis (i.e. the x-axis) (see column 5, line 66 to column 6, line 11).

With reference to claim 26, Balogh and Mochizuki teach all that is required with reference to claim 25, and Mochizuki further teaches that the x-axis is the horizontal axis when the display panel is in normal use, and the y-axis is the vertical axis when the display panel is in normal use (see column 5, line 66 to column 6, line 11).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ILANA SPAR whose telephone number is (571)270-7537. The examiner can normally be reached on Monday-Thursday 8:00-4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571)272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bipin Shalwala/
Supervisory Patent Examiner, Art Unit 2629

ILS